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Solutions

Simplify each expression. Give each answer without negative exponents.

1. $\frac{a^{10}}{a^6} = a^4$	2. $\frac{b^4}{b^7} = \frac{1}{b^3}$	3. $f^{-4} = \frac{1}{f^4}$
4. $5f^{-3} = \frac{5}{f^3}$	5. $6^{-1}f^7 = \frac{f^7}{6}$	6. $(2x^4)^3 = 8x^{12}$
7. $(2x^{-3})^{-2} = 2^2x^6$ $\frac{x^6}{2^2} = \frac{x^6}{4}$	8. $2x \cdot 4x^2 = 8x^3$	9. $9x^3y^2 \cdot x^4y^5 = 9x^7y^7$
10. $4x^7y^{-4} \cdot 5x^{-6}y^4 = 20xy^0 = 20x$	11. $x \cdot (2x^2)^4 \cdot (3x^3)^2 = x \cdot 16x^8 \cdot 9x^6 = 144x^{15}$	12. $2^5 + 3^4 + 4^3 = 32 + 81 + 64 = 177$
13. $(12x^{-7}y^{20})^0 = 1$	14. $2^2 \cdot 2^3 + \frac{2^9}{2^7} = 2^5 + 2^2 = 32 + 4 = 36$	15. $\frac{a^{-5}}{a^{-3}} = \frac{1}{a^5 \cdot a^{-3}} = \frac{1}{a^2}$
16. $\frac{x^4z}{z^6x} = \frac{x^3}{z^5}$	17. $\frac{35x^{-3}z^{-2}}{42z^{-6}x^{-1}} = \frac{5z^2z^6}{6x^{-1}x^3} = \frac{5z^8}{6x^2}$	18. $2^2 \cdot 2^3 \cdot 2^4 + 2^{-3} = 4 \cdot 8 \cdot 16 + \frac{1}{2^3} = 512\frac{1}{8}$